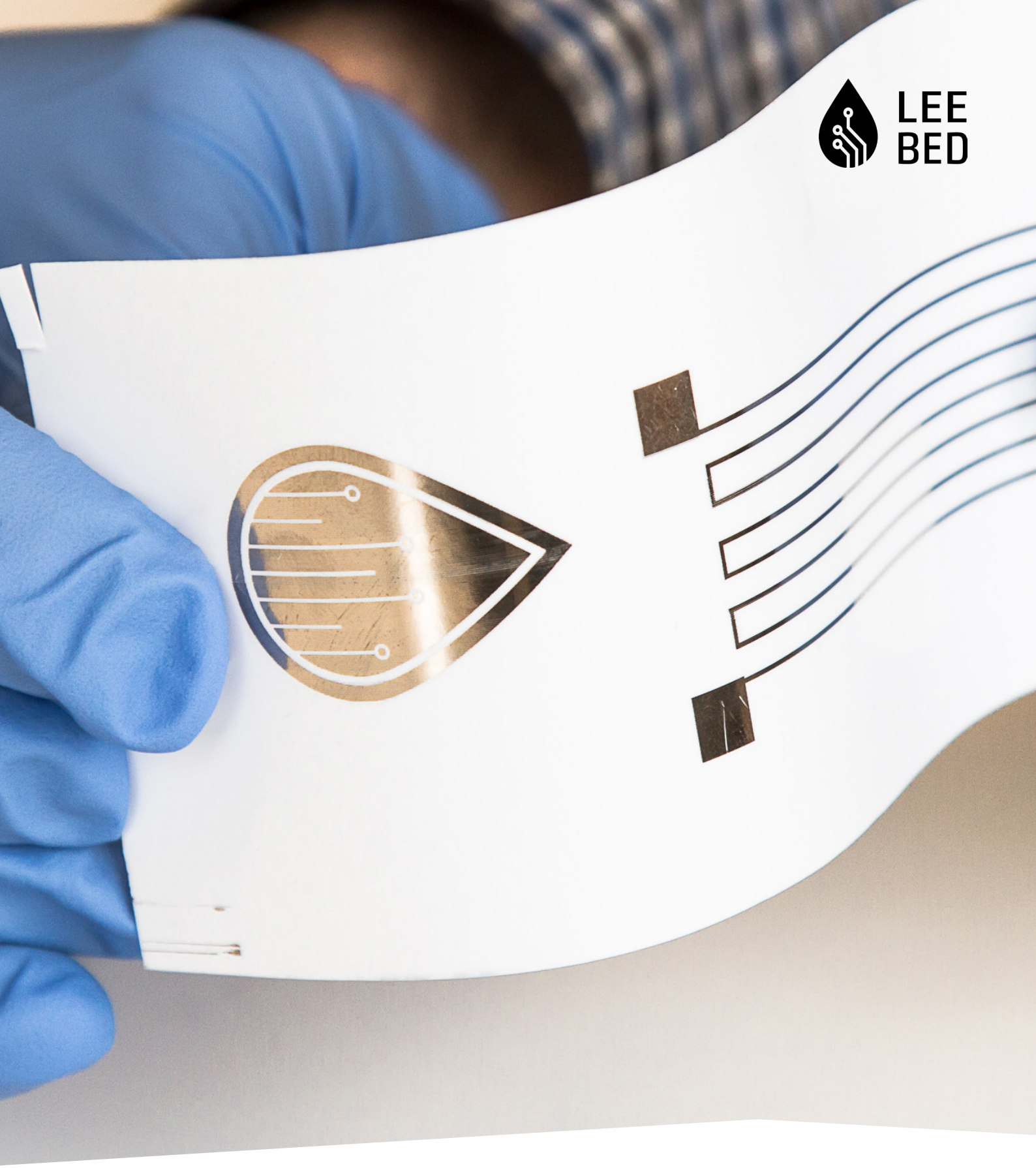


LEE BED

PATENT MAPPING YOUR IDEA

Introductory

DANISH TECHNOLOGICAL INSTITUTE

DANISH TECHNOLOGICAL INSTITUTE | PATENT MAPPING YOUR IDEA | 2019

Innovation begins with a map of technology

LEE-BED invites enterprises and stakeholders to gain insight and exploit knowledge from some of Europe's leading RTOs within printed electronics in an open innovation test bed. A first technological assessment of your innovation idea is crucial for your success in the open innovation test bed.

LEE-BED stands for Innovation Test Bed for development and production of nanomaterials for lightweight embedded electronics.

As a partner in LEE-BED, Danish Technological Institute (DTI) suggests that you begin your journey or innovation process within the test bed with a map – a map of the technologies surrounding your innovation or idea.

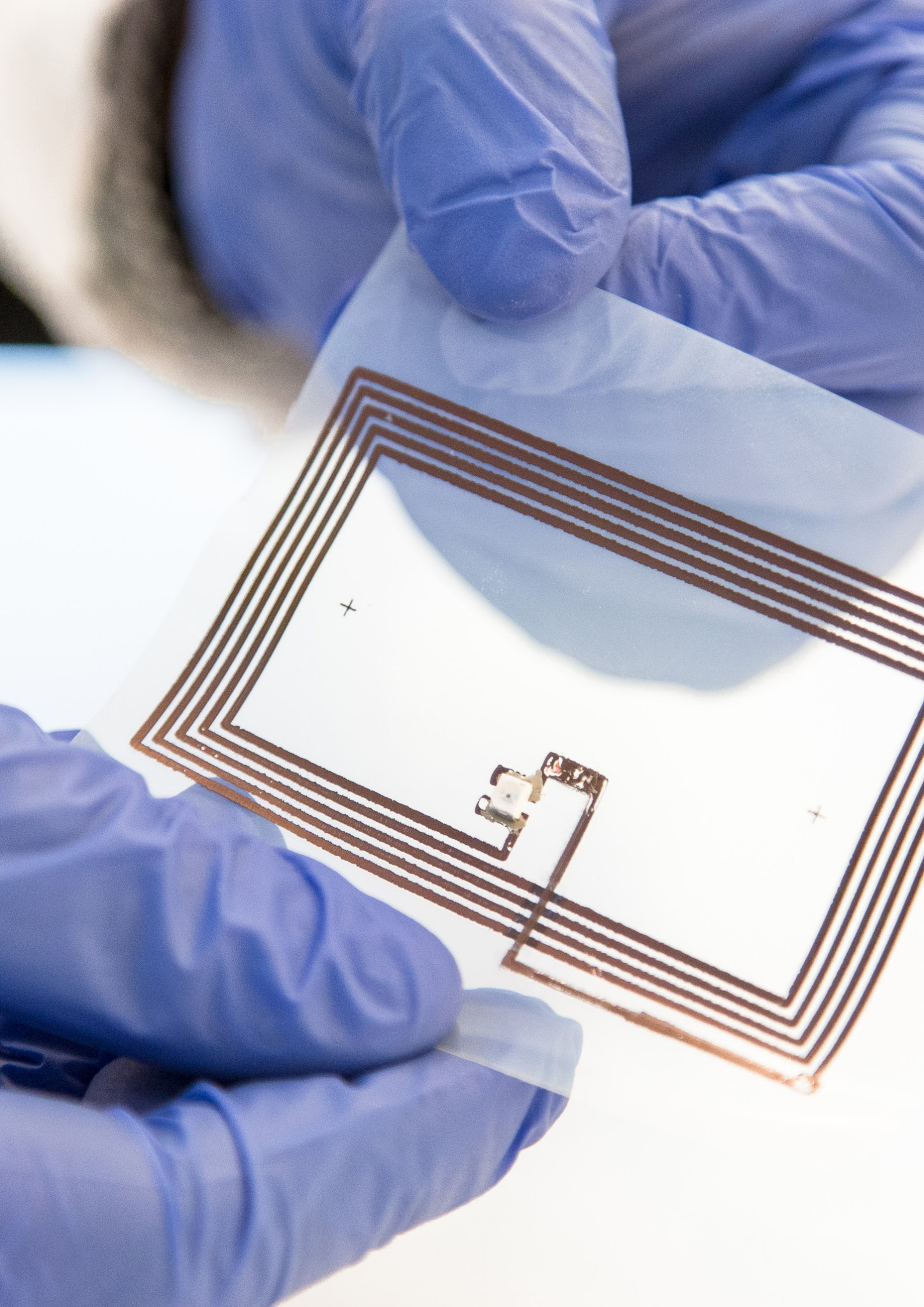
We help your introduction to the test bed with a patent mapping. Patent mapping – or "tech-mining" – is essentially a strategic analysis of technological data in global patent databases. We help you to delve into the key technological and business information buried in the big data of the world's patents.

Patent mapping

- Deepens your **understanding** of the uniqueness of your innovation idea
- Gives you an **insight** into the market trends of your technology field
- **Inspires** you to improve your innovation idea
- Helps you to **identify** your key competitors and gain an **insight** into their R&D direction – and track them if necessary
- Finds **potential**, world-class partners globally or locally
- Provides you with **arguments** - pros and cons - for:
  - your investors or the CFO on the market
  - your technology team or CTO on future R&D opportunities
  - your CEO for identifying possible tech partners
- Helps you to **avoid** entering a crowded market and finding smart solutions
- Guides your **focus** for future innovation work

You know your innovation idea well and we know the mechanics of big data analysis and the world of patents. The analysis is a collaboration between us. We will guide you to scope your analysis, and we will identify the key fields and find some of the players or technologies most relevant to your needs.

Your investment in time to gain this knowledge will be 3-4 hours throughout the process.



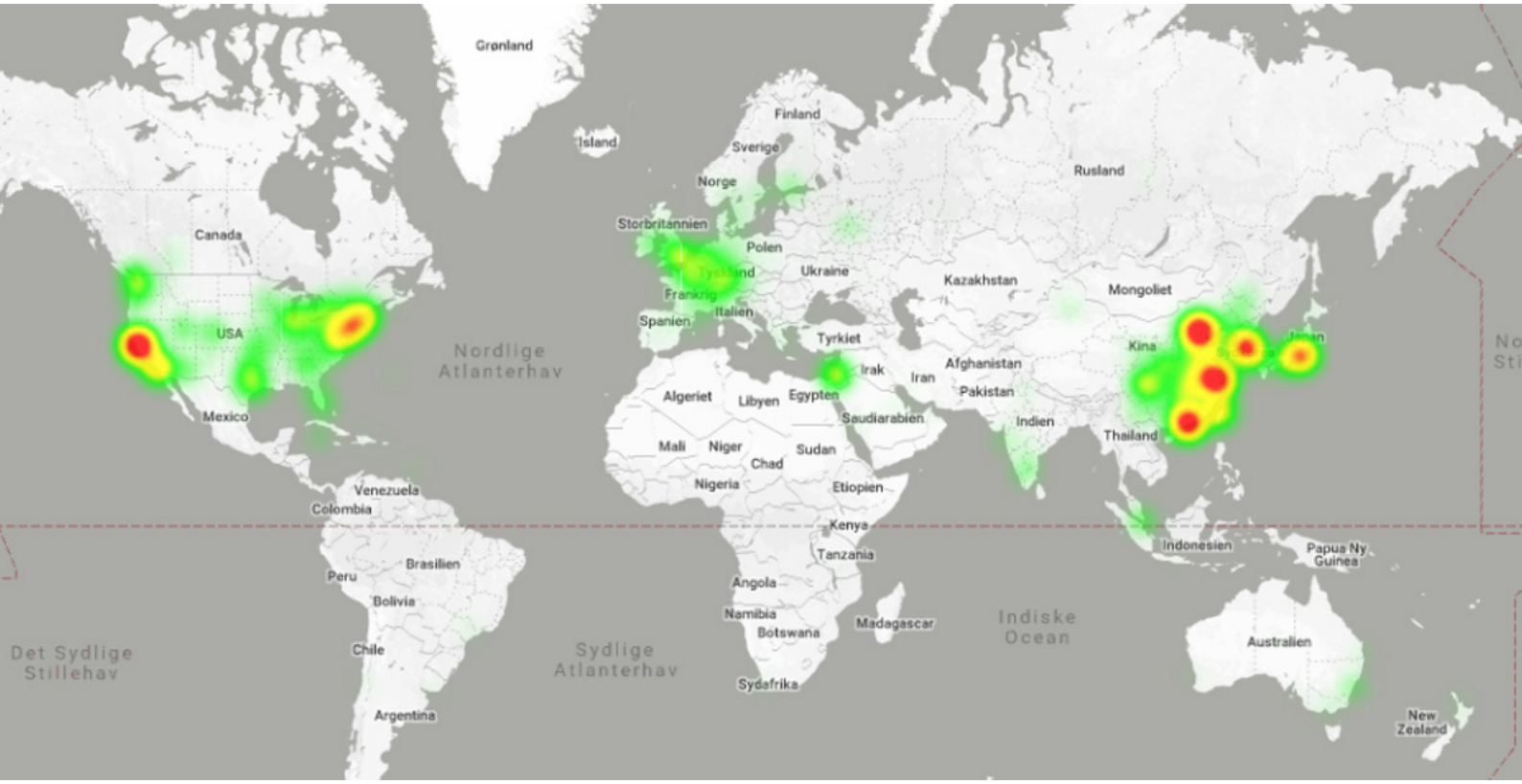
What is patent mapping?

Patent information is information about intellectual property rights (IPR). Below follows a brief introduction to patent and patent databases.

With a patent a sovereign state or intergovernmental organisation grants exclusive rights to the owner of an invention in the form of a specific solution, product, or process for a limited period. In exchange for the patent, there is a detailed public disclosure of the invention. Patent information is stored in national and international databases. With the IPR there is also detailed information on the technologies, the inventors, the assignees, and the partners. More than 70,000 tech codes insure detailed information. More than 100 million patents are stored in global databases. The databases are updated every day.

Inventors often use news searches to make sure that a "new" invention is in fact new. Most patent analyses consist of "news" searches. That is not how we do it.

Instead, the value you gain is a strategic outlook based on the analysis of thousands or millions of related technologies. Using big data techniques, the data miners at DTI make a strategic analysis of technological developments over time and place. This type of analysis is referred to as patent mapping. At the following pages you can read more about our approach to patent mapping.



What do you get from the analysis?

The patent mapping is divided into two phases "*the broad scan*" and "*zooming in scan*". The broad scan analyses general trends in your field of technology. "The zooming-in" phase is a more detailed and looks at specific patents in the areas that you find most promising. In the next two sections we present the possible outcomes when using the broad scan and the zooming-in scan.

A broad scan of market trends

The broad scan of a technology field contributes information to the patent mapping by addressing the overall trends across a period. Working closely with you, we define the selection of technologies to analyse. The outcome could include many thousands of patents depending on your innovation.

The analysis results in different outputs divided between market, actors, and technologies. Below follows a list of possible analyses related to a specific technology field. Each of the six analyses has additional specifications and several options for a

OUTCOME OF A BROAD SCAN OF MARKET TRENDS

Wheel of innovation

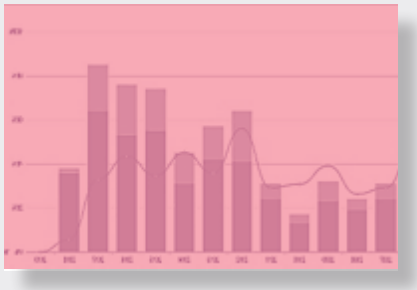
The circle chart categorizes the most frequent keywords into a 2-tier hierarchy within the most recent 10,000 simple patent families in the technology field. The wheel of innovation is useful to gain an overview of the different technologies and a key word focus on patents in the specific technology field.

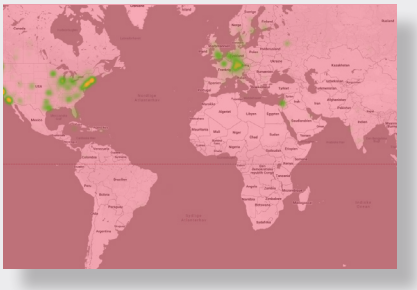
Innovation rate

The innovation rate graph shows the annual patenting trends in the technology field. The innovation rate contributes to the patenting pace of a technology area over a period. Additionally, the graph shows exactly when the technology came to fruition, and whether the technology is recent, emerging, or heading towards stagnation.

Heat map: Number of patents based on assignee addresses

The geographic breakdowns show the assignees behind patents in the technology field. The map is useful for identifying the territorial markets where the technology field is prominent and commercialized. The specified geographic areas of the map can be delimited to a smaller area such as the USA or Europe. The map is interactive and you can zoom in to see specific assignees behind the patents. The map makers can be grouped according to technology subfields.





more sophisticated output. We collect the material for you in a presentation with interpretive questions for further analysis.

Zooming in on closest competitors or interesting technologies

Zooming-in is an extraction of the most relevant patents, typically 10–20 patents. The purpose of zooming in on specific patents is to give you an in-depth insight into the technology and the companies behind it.

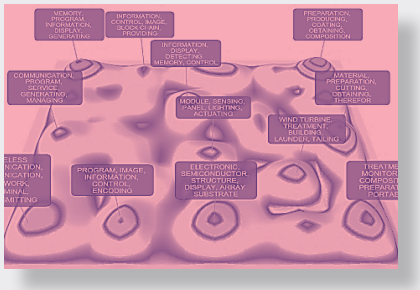
You can benefit from this narrow selection of the most relevant patents in the way you want. In collaboration with us, you can take advantage of the most interesting parts of the patents.

Examples of possible outcomes using zooming-in:

- Identify specific technologies worth cooperating with, licensing or perhaps buy?
- Locate the top local or global competitors.
- Get an exhaustive list of all your competitors in the market.
- Talent scouting: get a list of active inventors with the expertise in the areas you are interested in. The list can be used for hiring, finding collaborators, peer reviews, event speakers, consulting and more.
- Identify additional potential revenue streams: get information on IP valuation and competitor activities.
- Identify the exact inventors in companies or universities that you would like to partner with.

Technology landscaping

The landscape is a 3D representation of the patents in a technology space. Peaks in the landscape indicate densely populated areas of patent development within a group of similar patents, while low-lying areas represent under-penetrated areas for potential growth and expansion into new territories. The technology landscape creates an overview of the patent groupings in the specific technology field. Landscaping is useful for picking neighbouring technologies or identifying nearby companies.

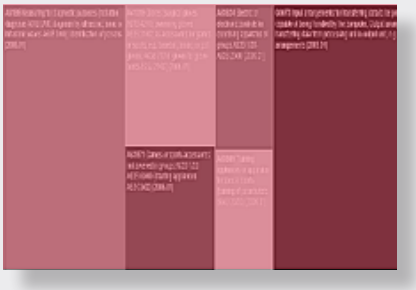


Main companies: Patenting activity by year

The graph shows the portfolio sizes of the top organizations in the technology field. This figure illustrates the leading players across time and the threat of competition in the investigated technology field. This will give you access to useful information about your competitors or potential partners, e.g., whether they have intensified their innovation rate and when.

Technology focus

The graph visualizes the top 10 technology areas that the patents within the technology field fall into, with the size of the box corresponding to the number of patents. This information can be used to identify opportunities for cross application of the specific technology field.



Process of patent mapping your idea - steps 1 - 5

Patent mapping analysis is a collaborative process between you and the patent mapping experts at DTI. The process is outlined below.

The first step is understanding your innovation idea or invention. The first task is to scope your innovation idea or invention in close collaboration with us. We do that in a short interview – either face-to-face, in writing or via Skype. We need to understand your new idea or invention and what is important to you in order to give you the best possible value from the analysis. The key words and phrases are crucial for starting the patent mapping analysis. The scoping is an investment of an hour of your time.

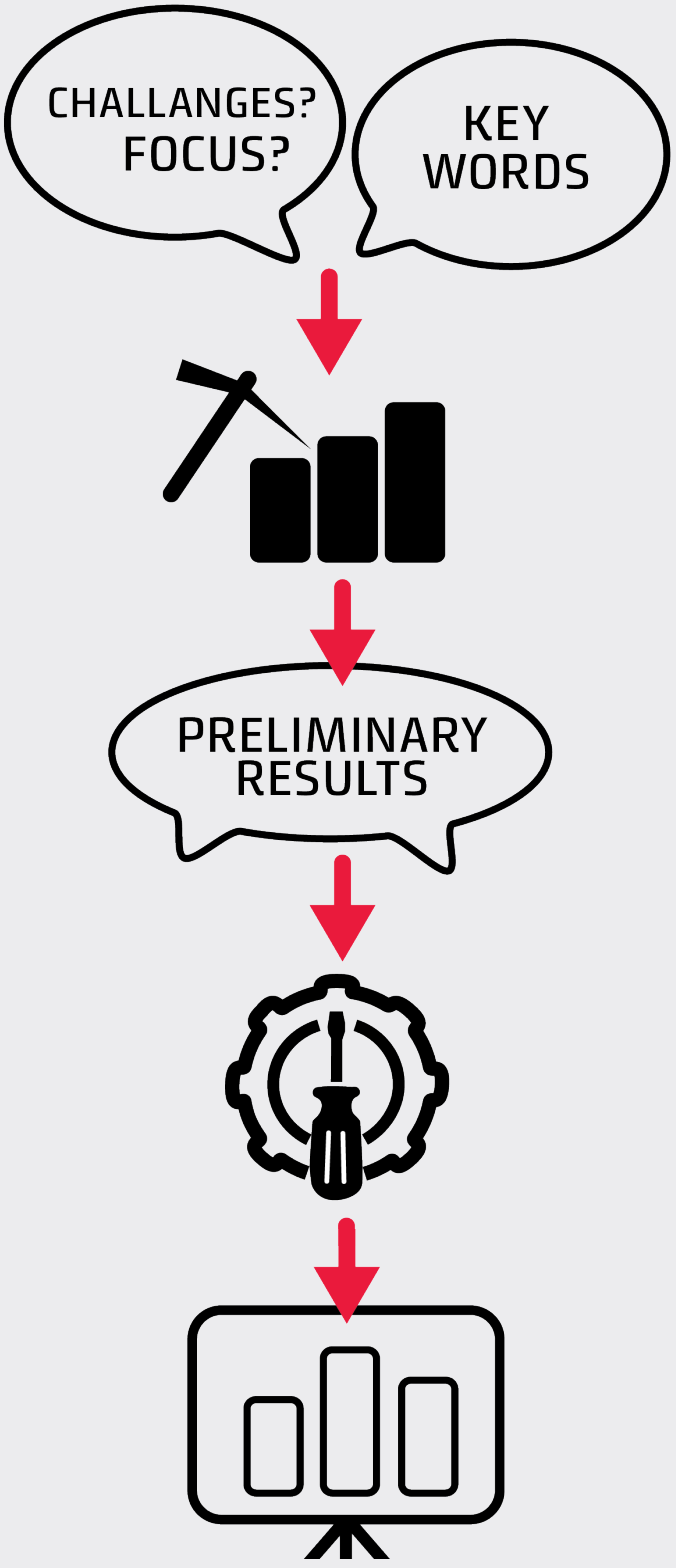
The second step is the broad scan of the technology field and is the initial phase of the data mining process. We will present and discuss the results of the broad scan to make sure that we have identified the expected technology field and related technologies. The data mining process is a trial and error process in identifying the core set of relevant patents. Thus, we are in close contact with you throughout the entire process to ensure that we are on the right track, and if the identified patents are irrelevant to you, we need to redefine our search.

The third step is the data mapping report with a brief explanation of our findings. We present the report to you either face-to-face or via Skype.

The fourth step is the zooming-in. With the results of the broad scan we guide you to select a handful of patents most relevant to you in connection with the presentation of the broad scan.

The fifth and final step is the extraction of a handful of patents from the databases. Here we, as analysts, may not have the right expertise. But that is the whole idea of LEE BEED, because it will be useful for you to bring the inspiration from the zooming-in with you to the test bed.

Your investment in time will be 3-4 hours in total.



Step 1: Dialogue with company on technological focus and technological challenges to be investigated and relevant key words or phrases.

Step 2: Initial data mining (broad scan).

Step 3: Dialogue with you on preliminary results.

Step 4: Fine-tuning the search (broad scan and zooming in).

Step 5: Presentation of results.

How you get started

To achieve the best results, we need your input, and then we shape the patent mapping analysis of your innovation idea or invention together. The first step is to contact us:

Leif H. Jakobsen
Seniorspecialist
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lhjn@teknologisk.dk

When contact has been established, we will go right to the first step with an interview. Before the interview, we will mail you a number of key questions to get started. They could include questions such as:

- What problem is your invention or idea a solution to?
- How would you define the overall technology field of your idea? And what other technologies do you use?
- Do you know whether there are different names for the technology field?
- Do you have any articles or texts about your invention or idea?
- Are there specific technologies you that would like to exclude from the patent search?
- Who do you expect will use your invention?
- What would you like us to look for – competitors, partners, trends, geographies?
- Can you think of close competitors or substitutes?

Based on the start-up interview, we will initiate the patent search. Throughout the entire process we will verify the results with you on a regular basis to ensure that we are on the right track and live up to your expectations. At the start-up meeting, we also agree on the schedule for the analysis. Usually, we expect to be ready with the broad scan within a week after your initial contact with us – and will then spend a few days to extract the patents that you wish to zoom in on.

Throughout the entire patent mapping analysis, you are more than welcome to contact us with any uncertainties or questions that you may have.

LEE-BED AND DTI

DTI was founded in 1906 and is a self-owned not-for-profit institute with six divisions and 35 specialist centres. DTI has more than 1,000 employees in Denmark, Sweden, Norway, Poland, and Spain. As part of DTI, we always have access to the best experts in technology, business and competence development, and innovation. This enables us to set a team that can solve our clients' technological problems. DTI develops, applies, and disseminates research- and technology-based knowledge to Danish trade and industry, and the public sector. DTI participates in development projects, which are of use to society in close collaboration with leading research and educational institutions both in Denmark and abroad.

Over the years, DTI has collaborated with Georgia Tech, the leader within tech-mining and their analytical software package 'Vantage Point' and Thomson Innovation to understand tech-mining. Tech-mining is a fast-evolving discipline and new tools for tech-mining such as PatSnap are emerging with impressive visualisation of technological development. DTI is currently working with PatSnap. PatSnap is an innovative and business-oriented datamining tool that creates both comprehensive, fast, and valuable technology and market insights for its users.

DTI is a partner in LEE-BED which brings together world-leading European research and technology organizations and industry to establish an Open Innovation Test Bed focusing on nanomaterials and light-weight embedded electronics. The main objective of LEE-BED is to accelerate the development and minimize the risk of manufacturing nanomaterials and lightweight embedded and printed electronics for the benefit of a wide range of European industries. The vision of LEE-BED is to make Europe more competitive than the US and Asia, pushing Europe forward within R&D and commercialization and bringing manufacturing back to Europe.

The potential European enterprises and stakeholders will be drawn into the LEE-BED Open Innovation Test Bed through targeted outreach activities. The first phase of the Open Innovation Test Bed is directly after LEE-BED users apply through the single-entry point, where the end-users will receive a tech-no/economic assessment to ascertain the feasibility of the user idea. Our service in Phase 1 is patent mapping.

Patent mapping of the specific technology field contributes to ascertaining the state-of-art within a field. Moreover, we will use the patent mapping tools to produce patent statistics for identifying global trends and close competing technologies and companies.

Would you like to kick-of your innovation process with a map to guide you?

Contact:
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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 814485

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